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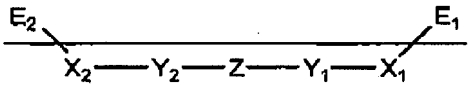
AMENDMENTS TO THE SPECIFICATION

In the Abstract

~~Improved organophotoreceptor comprises an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:~~

~~(a) a charge transport material having the formula~~



~~where Y_1 and Y_2 comprise, each independently, a carbazolyl group;~~

~~X_1 and X_2, each independently, are a bridging group;~~

~~E_1 and E_2 comprise, each independently, an epoxy group; and~~

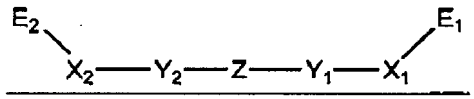
~~Z is a linking group; and~~

~~(b) a charge generating compound.~~

~~Organophotoreceptors with the charge transport material crosslinked to a polymeric binder are also described. Corresponding electrophotographic apparatuses and imaging methods are described.~~

Improved organophotoreceptor comprises an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(a) a charge transport material having the formula



where Y_1 and Y_2 comprise, each independently, a carbazolyl group;

X_1 and X_2, each independently, are a bridging group;

E_1 and E_2 comprise, each independently, an epoxy group; and

Z is a linking group; and

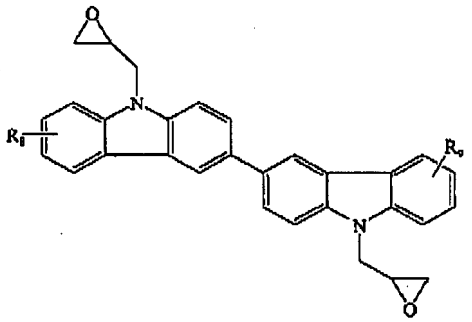
(b) a charge generating compound.

Organophotoreceptors with the charge transport material crosslinked to a polymeric binder are also described. Corresponding electrophotographic apparatuses and imaging methods are described.

In the Specification

Please insert the following paragraph at page 5, between lines 22 and 23.

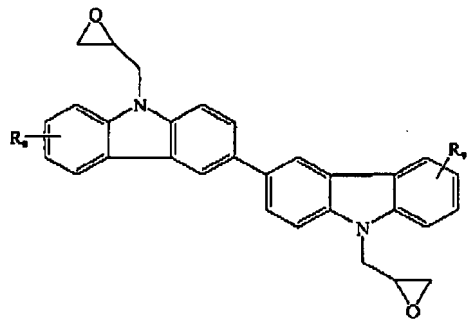
In another embodiment, an organophotoreceptor comprises a charge transport material wherein the charge transport material is selected from the group of compounds represented by the following formula



where R_8 and R_9 are, each independently, H, hydroxyl, thiol, carboxyl, -CHO, a keto group, an amino group, cyano, nitro, a halogen, an alkoxyl group, an alkyl group, an alkenyl group, an epoxy group, a thiiranyl group, an aziridino group, a heterocyclic group, or an aromatic group.

Please insert the following paragraph at page 24, between lines 5 and 6.

In another embodiment, an organophotoreceptor comprises a charge transport material wherein the charge transport material is selected from the group of compounds represented by the following formula

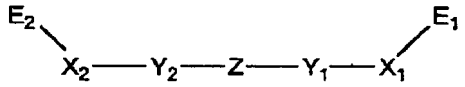


where R_8 and R_9 are, each independently, H, hydroxyl, thiol, carboxyl, -CHO, a keto group, an amino group, cyano, nitro, a halogen, an alkoxyl group, an alkyl group, an alkenyl group, an epoxy group, a thiiranyl group, an aziridino group, a heterocyclic group, or an aromatic group.

Page 3, line 19- page 4, line 8

In a first aspect, an organophotoreceptor comprises an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(a) a charge transport material having the formula



where Y_1 and Y_2 comprise, each independently, a carbazolyl group;

X_1 and X_2, each independently, are a bridging group, such as a $-(CH_2)_m-$ group, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, ~~N, C, B, P,~~ C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an amide group, an NR_3 group, a CR_4, or a CR_5R_6 group where R_3, R_4, R_5, and R_6 are, independently, ~~a bond,~~ H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring;

E_1 and E_2 comprise, each independently, an epoxy group; and

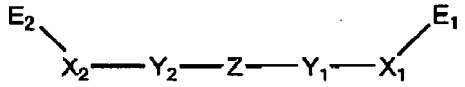
Z is a linking group comprising a bond, a $-(CR_5=CR_6-)_n-$ group, a $-CR_7=N-$ group, or an aromatic group, where R_5, R_6, and R_7 are, each independently, H, an alkyl group, an alkenyl group, a heterocyclic group, or an aromatic group, and n is an integer between 1 and 10, inclusive; and

(b) a charge generating compound.

Page 4, line 28-page 5, line 17

In a fourth aspect, the invention features a charge transport material having the general formula above.

In a fifth aspect, the invention features a polymeric charge transport compound prepared by the reaction of a functional group in a polymeric binder with at least an epoxy group in a compound having the formula



where Y_1 and Y_2 comprise, each independently, a carbazolyl group;

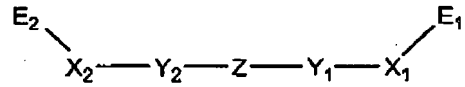
X_1 and X_2, each independently, are a bridging group, such as a $-(CH_2)_m-$ group, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, ~~N, C, B, P,~~ C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an amide group, an NR_3 group, a CR_4, or a CR_5R_6 group where R_3, R_4, R_5, and R_6 are, independently, ~~a bond,~~ H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring;

E_1 and E_2 comprise, each independently, an epoxy group; and

Z is a linking group comprising a bond, a $-(CR_5=CR_6-)_n-$ group, a $-CR_7=N-$ group, or an aromatic group, where R_5, R_6, and R_7 are, each independently, H, an alkyl group, an alkenyl group, a heterocyclic group, or an aromatic group, and n is an integer between 1 and 10, inclusive.

Page 10, lines 6-21

As described herein, an organophotoreceptor comprises a charge transport material having the formula



where Y_1 and Y_2 comprise, each independently, a carbazolyl group;

X_1 and X_2, each independently, are a bridging group, such as a $-(CH_2)_m-$ group, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, ~~N, C, B, P,~~ C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an amide group, an NR_3 group, a CR_4, or a CR_5R_6 group where R_3, R_4, R_5, and R_6 are, independently, ~~a bond,~~ H, hydroxyl, thiol, carboxyl, an

amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring;

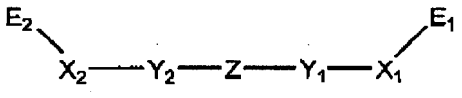
E_1 and E_2 comprise, each independently, an epoxy group; and

Z is a linking group comprising a bond,a $-(CR_5=CR_6-)_n-$ group, a $CR_7=N$ group, or an aromatic group, where R_5, R_6, and R_7 are, each independently, H, an alkyl group, an alkenyl group, a heterocyclic group, or an aromatic group, and n is an integer between 1 and 10, inclusive.

E_1 and E_2 each can be, independently, an oxiranyl ring.

Page 23, line 20- page 24, line 5

As described herein, an organophotoreceptor comprises a charge transport material having the formula



(1)

where Y_1 and Y_2 comprise, each independently, a carbazolyl group;

X_1 and X_2, each independently, are a bridging group, such as a $-(CH_2)_m-$ group, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, ~~N, C, B, P,~~ C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an amide group, an NR_3 group, a CR_4, or a CR_5R_6 group where R_3, R_4, R_5, and R_6 are, independently, ~~a bond,~~ H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring;

E_1 and E_2 comprise, each independently, an epoxy group; and

Z is a linking group comprising a bond, a $-(CR_5=CR_6-)_n-$ group, a $-CR_7=N-$ group, or an aromatic group, where R_5, R_6, and R_7 are, each independently, H, an alkyl group, an alkenyl group, a heterocyclic group, or an aromatic group, and n is an integer between 1 and 10, inclusive.

E_1 and E_2 each can be, independently, an oxiranyl ring.

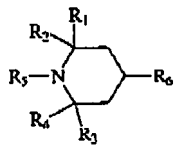
Page 13, lines 13-30

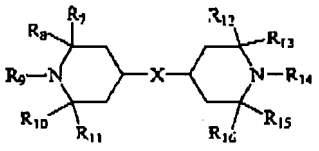
The electrically insulating substrate may be paper or a film forming polymer such as polyester (e.g., polyethylene terephthalate or polyethylene naphthalate), polyimide, polysulfone, polypropylene, nylon, polyester, polycarbonate, polyvinyl resin, polyvinyl fluoride, polystyrene and the like. Specific examples of polymers for supporting substrates included, for example, polyethersulfone (STABAR™ S-100, available from ICI), polyvinyl fluoride (TEDLAR® ~~Tedlar®~~, available from E.I. DuPont de Nemours & Company), polybisphenol-A polycarbonate (MAKROFOL™, available from Mobay Chemical Company) and amorphous polyethylene terephthalate (MELINAR™, available from ICI Americas, Inc.). The electrically conductive materials may be graphite, dispersed carbon black, iodine, conductive polymers such as polypyrroles and ~~Calgon~~ CALGON® conductive polymer 261 (commercially available from Calgon Corporation, Inc., Pittsburgh, Pa.), metals such as aluminum, titanium, chromium, brass, gold, copper, palladium, nickel, or stainless steel, or metal oxide such as tin oxide or indium oxide. In embodiments of particular interest, the electrically conductive material is aluminum. Generally, the photoconductor substrate has a thickness adequate to provide the required mechanical stability. For example, flexible web substrates generally have a thickness from about 0.01 to about 1 mm, while drum substrates generally have a thickness from about 0.5 mm to about 2 mm.

Page 15, line 15- page 16, line 2

Non-limiting examples of suitable light stabilizer include, for example, hindered trialkylamines such as ~~Tinuvin~~ TINUVIN® 144 and ~~Tinuvin~~ TINUVIN® 292 (from Ciba Specialty Chemicals, Terrytown, NY), hindered alkoxydialkylamines such as ~~Tinuvin~~ TINUVIN® 123 (from Ciba Specialty Chemicals), benzotriazoles such as ~~Tinuvin~~ TINUVIN® 328, ~~Tinuvin~~ TINUVIN® 900 and ~~Tinuvin~~ TINUVIN® 928 (from Ciba Specialty Chemicals), benzophenones such as ~~Sanduvor~~ SANDUVOR® 3041 (from Clariant Corp., Charlotte, N.C.), nickel compounds such as ~~Arbestab~~ ARBESTAB™ (from Robinson Brothers Ltd, West Midlands, Great Britain), salicylates, cyanocinnamates, benzylidene malonates, benzoates, oxanilides such as ~~Sanduvor~~ SANDUVOR® VSU (from Clariant Corp., Charlotte, N.C.), triazines such as ~~Cyagard~~ CYAGARD™ UV-1164 (from Cytec Industries Inc., N.J.), polymeric

sterically hindered amines such as ~~Luchem~~ LUCHEM™ (from Atochem North America, Buffalo, NY). In some embodiments, the light stabilizer is selected from the group consisting of hindered trialkylamines having the following formula:





where R_1, R_2, R_3, R_4, R_6, R_7, R_8, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15} are, each independently, hydrogen, alkyl group, or ester, or ether group; and R_5, R_9, and R_{14} are, each independently, alkyl group; and X is a linking group selected from the group consisting of $-O-CO-(CH_2)_m-CO-O-$ where m is between 2 to 20.

Page 15, lines 4-14

UV light absorbers can absorb ultraviolet radiation and dissipate it as heat. UV light inhibitors are thought to trap free radicals generated by the ultraviolet light and after trapping of the free radicals, subsequently to regenerate active stabilizer moieties with energy dissipation. In view of the synergistic relationship of the UV stabilizers with electron transport compounds, the particular advantages of the UV stabilizers may not be their UV stabilizing abilities, although the UV stabilizing ability may be further advantageous in reducing degradation of the organophotoreceptor over time. The improved synergistic performance of organophotoreceptors with layers comprising both an electron transport compound and a UV stabilizer are described further in ~~copending,~~ U.S. Patent Application Serial Number 10/425,333 (abandoned) filed on April 28, 2003 to Zhu, entitled "Organophotoreceptor With A Light Stabilizer," incorporated herein by reference.

Page 19, line 29 - page 20, line 10

In general, any layer with an electron transport compound can advantageously further include a UV light stabilizer. In particular, the electron transport layer generally can comprise an electron transport compound, a binder, and an optional UV light stabilizer. An overcoat layer comprising an electron transport compound is described further in copending U.S. Patent

Application Serial No. 10/396,536, now U.S. Patent No. 6,890,693, to Zhu et al. entitled, "Organophotoreceptor With An Electron Transport Layer," incorporated herein by reference. For example, an electron transport compound as described above may be used in the release layer of the photoconductors described herein. The electron transport compound in an electron transport layer can be in an amount from about 10 to about 50 weight percent, and in other embodiments in an amount from about 20 to about 40 weight percent, based on the weight of the electron transport layer. A person of ordinary skill in the art will recognize that additional ranges of compositions within the explicit ranges are contemplated and are within the present disclosure.

Page 22, lines 11-20

An overcoat layer may comprise an electron transport compound as described further in copending U.S. Patent Application Serial No. 10/396,536, now U.S. Patent No. 6,890,693, filed on March 25, 2003 to Zhu et al. entitled, "Organoreceptor With An Electron Transport Layer," incorporated herein by reference. For example, an electron transport compound, as described above, may be used in the release layer of this invention. The electron transport compound in the overcoat layer can be in an amount from about 2 to about 50 weight percent, and in other embodiments in an amount from about 10 to about 40 weight percent, based on the weight of the release layer. A person of ordinary skill in the art will recognize that additional ranges of composition within the explicit ranges are contemplated and are within the present disclosure.

Page 23, lines 3-17

The charge transport materials as described herein, and photoreceptors including these compounds, are suitable for use in an imaging process with either dry or liquid toner development. For example, any dry toners and liquid toners known in the art may be used in the process and the apparatus of this invention. Liquid toner development can be desirable because it offers the advantages of providing higher resolution images and requiring lower energy for image fixing compared to dry toners. Examples of suitable liquid toners are known in the art. Liquid toners generally comprise toner particles dispersed in a carrier liquid. The toner particles can comprise a colorant/pigment, a resin binder, and/or a charge director. In some embodiments

of liquid toner, a resin to pigment ratio can be from 1:1 to 10:1, and in other embodiments, from 4:1 to 8:1. Liquid toners are described further in Published U.S. Patent Applications 2002/0128349, now U.S. Patent No. 7,098,265, entitled "Liquid Inks Comprising A Stable Organosol," and 2002/0086916, now U.S. Patent No. 6,828,358, entitled "Liquid Inks Comprising Treated Colorant Particles," and U.S. Patent No. 6,649,316, entitled "Phase Change Developer For Liquid Electrophotography," all three of which are incorporated herein by reference.